

IN THE CLAIMS

Claim 1 (Currently Amended): A semiconductor device comprising:
a semiconductor substrate;
source and drain electrodes, which are formed on the semiconductor substrate to make ohmic contact with the semiconductor substrate;
a T-shaped gate electrode, which is formed between the source and drain electrodes on the semiconductor substrate; and
a first insulating layer formed on the semiconductor substrate;
a silica aerogel layer formed on the first insulating layer; and
an second insulating layer formed on the silica aerogel layer, the source electrode and the drain electrode, the second insulating layer including a silica aerogel layer, the silica aerogel second insulating layer is coupled to the T-shaped gate electrode being interposed between the gate electrode and the source and drain electrodes.

Claim 2 (Currently Amended): The semiconductor device of claim 1, wherein the first insulating layer is formed of a composite layer of the silicon nitride layer and the second insulating layer formed of silica aerogel layer.

Claim 3 (Currently Amended): The semiconductor device of claim 2, wherein the silica aerogel layer has a thickness greater than the thickness of the ~~silicon nitride~~first insulating layer.

Claim 4 (Currently Amended): The semiconductor device of claim 2, wherein the ~~silicon nitride~~first insulating layer has a thickness of 100-1000 Å.

Claim 5 (Original): The semiconductor device of claim 1, wherein the silica aerogel layer has a thickness of 1000-3000 Å.

Claim 6 (Withdrawn): A method of manufacturing a semiconductor device, the method comprising:

forming an insulating layer pattern on a semiconductor substrate, the insulating layer pattern being formed of a composite layer of a first insulating layer and a silica aerogel layer and defining a first opening through which a first portion of the semiconductor substrate is exposed;

forming source and drain electrodes on the semiconductor substrate exposed through the first opening;

forming a second insulating layer for covering the source and drain electrodes and the insulating layer pattern;

patternning the second insulating layer and the insulating layer pattern to form a second opening through which a second portion of the semiconductor substrate is exposed, between the source and drain electrodes; and

forming a T-shaped gate electrode on the semiconductor substrate exposed through the second opening.

Claim 7 (Withdrawn): The method of claim 6, wherein the second insulating layer is formed of silica aerogel.

Claim 8 (Withdrawn): The method of claim 6, wherein the forming the insulating layer pattern includes:

forming the first insulating layer on the semiconductor substrate; and
forming the silica aerogel layer on the first insulating layer.

Claim 9 (Withdrawn): The method of claim 6, further comprising etching the semiconductor substrate exposed through the second opening to form a recess region in the semiconductor substrate, wherein the gate electrode is formed in the recess region.

Claim 10 (Withdrawn): The method of claim 6, wherein the first insulating layer is a silicon nitride layer.

Claim 11 (Withdrawn): A method of manufacturing a semiconductor device, the method comprising:

- forming a source and drain electrodes on a semiconductor substrate;
- forming a first insulating layer for covering the source and drain electrodes and a top surface of the semiconductor substrate;
- forming a silica aerogel layer on the first insulating layer;
- patterning the silica aerogel layer and the first insulating layer to expose a first portion of the semiconductor substrate; and
- forming a T-shaped gate electrode on the first exposed portion.

Claim 12 (Withdrawn): The method of claim 11, wherein the first insulating layer is a silicon nitride layer.